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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,269	04/18/2006	Yuzuru Sugano	Q94086	3633
23373 7590 03/17/2009 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER TAYLOR II, JAMES W				
ART UNIT		PAPER NUMBER		
1796				
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03/17/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/576,269

Applicant(s)

SUGANO ET AL.

Examiner

James W. Taylor II

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. All outstanding rejections and objections not explicitly maintained below are withdrawn in light of applicant's amendment filed 1/9/2009.
2. The text of those sections of 35 U.S.C. not included in this action can be found in a prior action.

Claim Rejections - 35 USC § 103

3. Claims 1-2, 5-8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn *et alli* (US 2004/0009614 A1).
4. Ahn teaches magnetic bead-based arrays (ti). The magnetic beads are particles surface coated with a layer of material suitable for adsorbing or chemically coupling an analyte, for e.g., immunoassay or other analytes (par. 37). The beads comprise metallic metal oxides coated with polymers, which can be *inter alia* polyethylene or polypropylene (pars. 38-39). The preferred particle size is from 1 to 10 microns (par. 38).
5. Regarding claims 1, 6, and 10, the applicant claims properties (i.e., density and magnetic material loading in the particles) in which each is ultimately controlled by ratio of magnetic material to polymer ratio. Although Ahn is silent with respect to the amount of magnetic material relative to the particle, one of ordinary skill in the art would understand that the amount of magnetic material would directly control the sensitivity of the particles to magnetic radiation and thus an electric field. Given the disclosed utility for immunoassay, one of ordinary skill in the art would recognize the ratio of magnetic

material to polymer as a result effective variable. Optimization of result effective variables through routine experimentation is not a patentable distinction. See *In re Beosch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and MPEP 2144.05 (II) (B). Thus, it would have been obvious to optimize the amount of magnetic material relative to the polymer, thereby arriving at the instant claims.

6. Regarding claim 2, as noted above, the reference discloses using polyethylene or polypropylene as the polymer.

7. Regarding claim 5, as noted above, the preferred particle size of the reference's particles is 1 to 10 microns.

8. Regarding claims 7-8, as ferromagnetic, ferrimagnetic, paramagnetic, and superparamagnetic are mutually exhaustive of all magnetic materials, one of ordinary skill in the art would immediately envisage all four classes of magnetic materials. Further, the reference is open to all magnetic materials (par. 38). Thus, it would have been obvious for one of the art to utilize any of these four magnetic materials.

9. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn *et alli* (US 2004/0009614 A1) as applied to claims 1-2, 5-8, and 10, in view of Guo *et alli* (US 6,177,088).

10. Although as noted above Ahn teaches a functionalized coating (i.e., "chemical coupling"), Ahn fails to teach what functional groups are used in the coating listed in the present claim 3.

11. Guo teaches surface-functionalized, probe-containing nanospheres (ti.). Specifically, Guo's nanospheres can be surface coated with carboxylic acid groups, which will bind with antigens for immunoassay procedures (ab.; c. 4, ll. 35-54; c. 4, l. 64 to c. 5, l. 15). The compounds containing the carboxylic acid groups further contain a terminal olefin, to bind with the outer shell (c. 4, ll. 35-54). Thus, one of ordinary skill in the art has motivation and ability to use the functional groups of Guo to attach antigens for immunoassay.

12. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to polymerize Guo's acid-compound into Ahn, thereby arriving at one or more embodiments of the present claims 3-4.

13. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn *et alii* (US 2004/0009614 A1) as applied to claims 1-2, 5-8, and 10, in view of Goldman *et alii* (US 4,097,392).

14. Ahn fails to teach using a manganese-zinc ferrite, a nickel-zinc ferrite, or a combination thereof as the magnetic material.

15. Goldman teaches a method for manufacturing soft ferrite materials, including nickel-zinc ferrites and manganese-zinc ferrites (c. 10, ll. 66-67). The ferrites fall within the scope of Ahn's disclose "metal oxides." Further, Ahn discloses using nickel- or manganese-ferrites (par. 38). One of ordinary skill in the art would expect that nickel-zinc ferrites and manganese-zinc ferrites would behave similarly to nickel- or manganese-ferrites. In view of the above, it would have been obvious to one of

ordinary skill in the art at the time of the invention to use nickel-zinc ferrites or manganese-zinc ferrites as the magnetic material under the motivation that the presence of zinc would be expected to alter the magnetic characteristics of the composite.

Response to Arguments

16. Applicant's arguments with respect to Davies have been considered but are moot in view of the new ground(s) of rejection.

17. Applicant does not present any arguments relative to the secondary reference Goldman, and thus the use of that reference is maintained in combination with another primary reference.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James W. Taylor II whose telephone number is (571) 270-5457. The examiner can normally be reached on 7:30 am to 5:00 pm (off every other Friday).

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James W Taylor II/
Examiner, Art Unit 1796

jwt2

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796